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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Christopher Uhlik

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12/09/2005

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EXAMINER

AHMED, SALMAN

ART UNIT

PAPER NUMBER

2666

DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/003,165	UHLIK ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Salman Ahmed	2666	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11/09/2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-9,11-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/14/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see pages 7-9 of the Remarks section, filed 11/09/2005, with respect to the rejection of claims 1, 2, 6-9, and 11 under 35 U.S.C. 102(e) have been fully considered but they are not persuasive. Applicant argues that Chuah fails to disclose one or more Control commands employed by a respective network element to establish and manage one or more simultaneous wireless communication sessions of a single end-user terminal in a data network, as recited in claim 1. Thus, Chuah fails to teach or disclose at least one limitation found in independent claim 1. However, examiner respectfully disagrees with this assertion. The claim language (prior to amendment) was broad and in view of the broadest reasonable interpretation of this language, as was indicated in the previous office action, the claims 1, 2, 11 were rejected being anticipated by Chuah, claims 6-7 Chuah, in view of Akhtar and claims 8-9 Chuah in view of Tummala. The amended claims will be examined on their merits below.

2. Applicant's newly added claims 12-24 will be examined on their merits below.

### ***Claim Rejections - 35 USC § 103***

3. Claims 1, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah et al. (US PAT 6577644), hereinafter referred to as Chuah in view of Ho et al. (US PAT PUB 2002/0116501), hereinafter referred to as Ho.

In regards to claims 1, 11 and 14 Chuah teaches of a data networking protocol (column 3 lines 1-2, PPP is used as the link layer between the MN and the V-PDSN) comprising: one or more control commands (column 3 line 3, link-layer messages) employed by a respective network element to establish and manage one or two simultaneous wireless communication session (figure 4, multiple PPP links between Peer A and Peer B) of a single end user terminal of a data network.

In regards to claims 1, 11 and 14 Chuah does not explicitly teach one or more mobility management attribute-value pair(s) (AVP), employed by the network element to define one or more parameters of the accompanying control command and to facilitate exchange of mobility information in the data network

In regards to claims claims 1, 11 and 14, Ho teaches (page 5 section 0075) AVP being used to encode control message types to exchange of mobility information.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chuah's teaching by incorporating the teachings of sending AVP via control command and to facilitate exchange of mobility information as taught by Ho. The motivation is that (as suggested by Chuah, column 1 lines 27-28) one needs to enhance PPP to provide quality of service (QoS) features. Further motivation is that (as suggested by Ho, page 5, section 0075) Control messages 48 (see FIG. 2) are used in the establishment maintenance, and tearing down of service tunnels, such as service tunnels 30-32. To maximize extensibility while still permitting interoperability, a uniform method for encoding control Message Types and bodies is used throughout L2TP. This encoding is called Attribute Value pair (AVP). An Attribute Value pair is

defined as the variable length concatenation of unique attribute (represented by an integer) and a value containing the actual value identified by the attribute.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah and in view of Ho, in view of Chuah et al. (US PAT 6917600), hereinafter referred to as Chuah.

In regards to claim 2, Chuah, in view of Ho, teach of AVP being used in control command and to facilitate exchange of mobility information as described in the rejection of claim 1 above.

In regards to claim 2, Chuah, in view of Ho do not explicitly teach the mobility management Attribute-value pairs include an attribute value pair denoting whether an incoming call request is a new call or a handoff

In regards to claim 2 Chuah teaches (column 12 lines 60-67 and column 13 lines 1-2) the steps of combining hand-off control messages (CCRQ, CCRP, and CCCN) with the tunnel configuration (establishment) control messages (SCCRQ, SCCRQ, and SCCCN) and are, respectively, concurrently transmitted between LACs. So the messages can either be purely SCCRQ having a tunnel configuration (establishment) control part or SCCRQ with CCRQ having a hand-off part as well.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify to modify Chuah in view of Ho's teaching by incorporating the teachings of sending establishment or handoff AVP via control command and to facilitate exchange of mobility information as taught by Chuah. The

motivation is that (as suggested by Ho, page 5, section 0075) Control messages 48 (see FIG. 2) are used in the establishment maintenance, and tearing down of service tunnels, such as service tunnels 30-32. To maximize extensibility while still permitting interoperability, a uniform method for encoding control Message Types and bodies is used throughout L2TP. This encoding is called Attribute Value pair (AVP). An Attribute Value pair is defined as the variable length concatenation of unique attribute (represented by an integer) and a value containing the actual value identified by the attribute.

5. Claims 6, 7, 12, 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah in view of Ho, and in view of Akhtar et al. (US PAT 6769000), hereinafter referred to as Akhtar.

In regards to claims 6, 7, 12, 13, Chuah in view of Ho, teach of using attribute-value pair for mobility management as described in the rejection of claim 1 above.

In regards to claim 6, 7, 12, 13, Chuah in view of Ho does not explicitly teach authentication AVP during hand-off. In regards to claim 12, 13 Chuah, in view of Ho does not explicitly teach mobility information comprises at least a portion of a communication session identifier that follows a communication session as it traverses through mobile communication link handoffs, the communication session identifier at least in part to implement mobility security features and communication session identifier is used to authenticate a mobile communication link handoff.

In regards to claim 6, 7, 12, 13 Akhtar teaches that IPM-L2-Address AVP (column 84 lines 15-20), carries the L2-Address of IPM Client connection. The AVP carries both Address and Data. The types of Addresses include, among others, 802.3 Address (0), 802.11 Address (1), IMSI (2), and MIN (3). Akhtar further teaches IPM-SMM-MN-Key AVP (column 84 lines 59-61) carries the shared secret key between Serving Mobility Manager and Mobile Node. This key is only valid for the session. In regards to claim 6 and 7 Akhtar teaches (column 83 lines 5-7) that Integrity-Check-Value AVP is used for hop-by-hop message authentication and integrity.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chuah in view of Ho's teaching to incorporate Akhtar's teaching of deterministic element attribute-value pair (COOKIE AVP), random element attribute-value pair (K<sub>n</sub> AVP) and authentication AVP. The motivation is that (as suggested by Ho, page 5, section 0075) in L2TP protocol, AVP gives an advantage to maximize extensibility while still permitting interoperability, a uniform method for encoding message types and bodies used throughout L2TP. As such, necessary network parameters for session identification or authentication can be encoded in AVP for extensibility while still permitting interoperability.

6. Claims 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah (US PAT 6917600) in view of Akhtar et al. (US PAT 6769000), hereinafter referred to as Akhtar.

In regards to claims 15, 16, 17, 18, 19, 20, 21, 22 Chuah discloses one or more control commands employed by a respective network element to establish and manage a wireless communication session in a data network (column 2 line 43, three new hand-off control messages, column 2 lines 10-11). One or more mobility management attribute-value pair(s) (AVP) employed by the network element to define one or more parameters of the accompanying control command and to facilitate exchange of mobility information in the data network, wherein the mobility management attribute-value pair(s) include an attribute-value pair (column 8 lines 4-11, additional Attribute Value Pairs (AVP) are defined for use in the L2TP control messages, hence, becoming mL2TP control messages. These additional AVPs are for supporting the multi-hop features and call transfer features).

In regards to claims 15, 16, 17, 18, 19, 20, 21, 22 Chuah does not explicitly teach a deterministic element attribute-value pair (COOKIE AVP) or random element attribute-value pair (K<sub>n</sub> AVP).

In regards to claims 15, 16, 17, 18, 19, 20, 21, 22 Akhtar teaches that IPM-L2-Address AVP (column 84 lines 15-20), carries the L2-Address of IPM Client connection. The AVP carries both Address and Data. The types of Addresses include, among others, 802.3 Address (0), 802.11 Address (1), IMSI (2), and MIN (3). Akhtar further teaches IPM-SMM-MN-Key AVP (column 84 lines 59-61) carries the shared secret key between Serving Mobility Manager and Mobile Node. This key is only valid for the session. In regards to claim 6 and 7 Akhtar teaches (column 83 lines 5-7) that Integrity-Check-Value AVP is used for hop-by-hop message authentication and integrity.



It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chuah's teaching to incorporate Akhtar's teaching of deterministic element attribute-value pair (COOKIE AVP), random element attribute-value pair (K\_n AVP) and authentication AVP. The motivation is that in L2TP protocol, AVP gives an advantage to maximize extensibility while still permitting interoperability, a uniform method for encoding message types and bodies used throughout L2TP. As such, necessary network parameters for session identification or authentication can be encoded in AVP for extensibility while still permitting interoperability.

In regards to claims 19, 23, 24 Chuah teaches (column 12 lines 60-67 and column 13 lines 1-2) the steps of combining hand-off control messages (CCRQ, CCRP, and CCCN) with the tunnel configuration (establishment) control messages (SCCRQ, SCCRP, and SCCCN) and are, respectively, concurrently transmitted between LACs. So the messages can either be purely SCCRQ having a tunnel configuration (establishment) control part or SCCRQ with CCRQ having a hand-off part as well.

In regards to claim 20 a machine accessible storage medium comprising a plurality of executable instructions which, when executed by an accessing machine, incorporate into a communication stack of the accessing machine at least one or more mobility is anticipated by (column 20 lines 26-34) FIG. 16, a high-level block diagram of a representative NAS. NAS is a stored-program-control based processor architecture and includes processor, memory for storing program instructions and data, e.g., connection tables, etc., and communications interface(s) for coupling to one or more communication facilities as represented by a path.

7. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah in view of Ho, and in view of Tummala et al. (US PAT 6915345), hereinafter referred to as Tummala.

In regards to claims 8 and 9 Chuah in view of Ho teach of using AVP to do authentication during network hops.

In regards to claims 8 and 9 Chuah in view of Ho do not specifically teach about certificate AVP and validation from a third party certification agency or authority.

Tummala teaches (column 14 lines 33-38) that the encryption can be made using a shared secret or public keys, in the same manner as the Key AVPs returned by the AAAH in the Diameter Mobile IP Extensions when setting up the data security. If using PKI, the broker must be able to interface with a Certificate Authority (CA) or have those keys in storage.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chuah's teaching by incorporating Tummala's teaching of using security certificate in conjunction with certification authority. The motivation is that using security AVPs with security certificate in conjunction with certification authority or agency will enhance network security and prevent security breach.

8. Prior art pertinent to the application but not used in the office action:

Art Unit: 2666

Method and apparatus for handoff of a connection between network devices Verma et al. US PAT 6522880

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salman Ahmed whose telephone number is 571-272-8307. The examiner can normally be reached on Monday and Thursday from 7:30-4:00 Eastern Time.

Art Unit: 2666

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Salman Ahmed  
Examiner  
Art Unit 2666

SA

A handwritten signature in black ink, appearing to read 'Frank Duong', with a stylized, cursive script.

**FRANK DUONG**  
**PRIMARY EXAMINER**